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**STRATEGIC BRIGADE AIRDROP:
PAST. PRESENT. FUTURE?**

GRADUATE RESEARCH PAPER

Richard A. Klumpp, Jr., Major, USAF

AFIT/GMO/LAL/96N-6

**DEPARTMENT OF THE AIR FORCE
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GRADUATE RESEARCH PAPER

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Master of Mobility

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Richard A. Klumpp, Jr.

Table of Contents

	Page
Acknowledgments	ii
Abstract	iv
I. Strategic Brigade Airdrop - An Introduction	1
Situation Reports	1
II. Strategic Brigade Airdrop - The Past	3
Pre World War II	3
World War II.....	5
German Successes	5
Baby Steps	7
The Invasion of Sicily	9
Operation NEPTUNE - The Airborne Invasion of Normandy	11
Airborne Doctrine During the Final Operations of WWII	14
The Postwar Era and the Korean War	16
Airdrop Issues in the Early Days of the Air Force	16
Airborne Operations in Support of the Korean War	18
Out of Korea and Into Vietnam	19
III. Strategic Brigade Airdrop - The Present	22
Into the 80's - Defining the New Airlift Requirement	22
The Evolution of the C-17	23
Developing the Strategic Brigade Airdrop Doctrine	27
IV. Strategic Brigade Airdrop - The Future?	31
Questions	31
Can the C-17 Perform as Required as an Airdrop Platform?	31
What Size Force and Force Mix Would Be Required to Accomplish an SBA?	35
When Would the U.S. Use SBA, and Under What Battlefield Conditions?	38
V. Strategic Brigade Airdrop - Conclusions	42
Bibliography	44
Vita	47

Abstract

In November of 1995, the Defense Acquisition Board completed its Milestone IIIB review of the C-17 Globemaster procurement program. The Board decided to procure 80 more C-17's, for a total of 120, and defer any procurement of the Nondevelopmental Airlift Aircraft (NDAA). One of the driving factors in this decision was the Army's requirement to maintain a capability to accomplish a strategic brigade airdrop (SBA).

An SBA involves taking a brigade of airborne troops from the CONUS and deploying them directly into a combat zone several thousand miles away. (The actual distance is classified by the Defense Planning Guidance.) This research paper examines the historical roots of airborne operations, from before World War II through the Vietnam War. It then examines the airlift issues leading to the procurement of the C-17, along with the parallel evolution of the current SBA doctrine. Finally, it examines several issues in the form of questions that must be answered before the U.S. can actually expect to accomplish an SBA mission.

Serious problems exist with the C-17 as an airdrop platform; the full fleet of 120 C-17's plus 50 additional C-5B's would be required to accomplish an SBA; and there may not be many situations in the post Cold War world where the National Command Authorities would be willing to risk a fleet of \$300 million airplanes. Until these issues are resolved, SBA as a mission remains very much up in the air.

**“Where is the prince who can afford so to cover his country
with troops for its defenses as that 10,000 men descending from
the clouds might not in many places do an infinite deal of
mischief before a force could be brought together to repel
them.”**

**Benjamin Franklin, 1784
(After witnessing one of the first manned balloon flights)**

STRATEGIC BRIGADE AIRDROP: PAST. PRESENT. FUTURE?

I. Strategic Brigade Airdrop - An Introduction

Situation Reports

August 1990: Iraqi troops are massed on the border of Kuwait. Despite U.S. intelligence reports regarding their intentions, they suddenly come pouring across the border, quickly overrunning the tiny Arab country. Within hours they have secured their victory and approach the border with Saudi Arabia. Rather than stop to consolidate their gains, they continue to move south, rolling through the rich oil fields of northeast Saudi Arabia and capturing the strategic city of Dhahran. They meet with stiff resistance from Saudi and U.S. troops, but their overwhelming numbers eventually subdue their foe. Before the U.S. has a chance to react, Iraq has occupied all of Kuwait and a significant portion of the Saudi peninsula...

July 4, 1999: North Korea's fledgling nuclear weapons program has recently made a breakthrough and produced its first actual weapons of mass destruction. Correctly assuming that American vigilance will have relaxed somewhat as they celebrate their independence, North Korean troops pour out of covert tunnels on the southern side of the DMZ by the thousands. Caught by surprise, U.S. and Republic of Korea forces fight valiantly, but are soon pushed back toward Pusan. Reinforcements cannot arrive quickly enough and they are in danger of being driven completely off the peninsula...

Both of these situations demand immediate response from the United States National Command Authorities to assist U.S. and Allied troops in grave danger. In some part, that response will probably include the movement of a large number of U.S. troops from the Continental United States (CONUS) directly to the combat zone. One group of these troops, members of the 82nd Airborne Division, may be airdropped into the enemy's rear to capture an airhead as an operating base, cut off the enemy's supply and communication lines, and eventually encircle the main enemy force.

The ability to accomplish such a mission, known as Strategic Brigade Airdrop (SBA), greatly enhances the force projection capability and deterrent effect of the U.S. armed forces. In this paper, I will examine the historical roots of the SBA concept, from WWI through the early 1980's. While this term has only been around for a couple of years, the brigade airdrop concept dates back to World War II and possibly before. Once I have established the historical basis of SBA, I will look at how the current doctrine of this joint Army/Air Force operation has evolved, in conjunction with the evolution of the Air Force's new core airlifter, the C-17. Finally, I will examine the future projections of U.S. capability to actually accomplish a Strategic Brigade Airdrop and potential pitfalls that might arise to hamper our capability, in the form of questions which must be answered before we can accomplish this mission properly.

II. Strategic Brigade Airdrop - The Past

Pre World War II

The concept of using airdrop methods to locate troops at a time and place of our choosing in order to achieve the elements of surprise and mass dates back nearly to the advent of the airplane itself. As World War I was coming to a close, Gen John J. Pershing was looking for a way to capture the German stronghold of Metz, France. His head of air operations, Col William "Billy" Mitchell, came to him with a novel proposal.

Mitchell's concept called for 12,000 parachutists, each with two machine guns, to drop from 1,200 bombers, creating havoc in the enemy's rear and an opening for an Allied advance. The paratroopers were to drop simultaneously and be resupplied by air. Mitchell envisioned close air support for the force until it got dug in. Pershing was skeptical but asked for details of how such a venture would be executed. Mitchell put his new operations officer, Maj Lewis H. Brereton, to work on the project but the armistice stopped his study. The Allies would not test the idea for many years to come. (Galvin, 1969: 2-3)

While the U.S. did little other than very basic testing of the airborne assault concept during the interwar period, other nations invested heavily in research and development of this new approach. At the front of this movement were the Russians and the Germans. The Russians were very overt about their preparations. They sent video footage throughout the world in 1935 showing a battalion-sized Red Army parachute descent. In the autumn of 1936, they invited an international audience of military observers and attachés to observe "a complete brigade drop from ANT6 transport aircraft

to seize river crossings in order to deny them to a retiring ‘enemy’ formation” (Hickey, 1979: 15).

While the Russians showed their capability to the world, the Germans secretly developed their own very effective airborne assets. Due to the Treaty of Versailles, the Germans were prohibited from building any military aviation capability. The Germans found ways to work around this restriction, putting together flying schools for sports flying and gliding, which they then staffed with ex-military pilots. When Hitler came to power, the foundation had already been laid for what would become the *Luftwaffe*. In the mid-1930’s, Herman Göring, the head of the *Luftwaffe*, absorbed several widely scattered units in order to gain control of all airborne operations.

The Germans trained these airborne units for a possible landing in Czechoslovakia which might become necessary during the annexation of the Sudetenland. The failure of the western Allies to contest this grab by Hitler allowed him to do so with minimal resistance from the Czechs and without the need to deploy his airborne forces. They would have to wait until the early stages of WWII to show how effective an airmobile fighting force could be.

World War II

German Successes. As they launched the attacks which would eventually become WWII, the Germans had established a tactical concept which exists virtually unchanged to this day. Because of the extreme range of the objectives in mid and northern Norway, it was essential to seize Danish airfields on the first day, together with those at Sola near Stavanger and Fornebu just outside Oslo. “The *coup-de-main* attacks against these were entrusted to parachute units...The airborne plan was a masterpiece of audacity. Just as victims of a smash-and-grab raid are paralyzed by the violence of the onslaught, so did the Germans visualize the effect of their airborne arrival” (Hickey, 1979: 43-44).

The airborne portion of the assault came off as planned. While considered a success, many problems were identified which needed to be solved in order to improve the probability of future success. Among these were command and control of the force enroute to the target, lack of heavy weapons in support of the parachute assault, and the inability of the paratroops to jump with any but the lightest small arms (Hickey, 1979: 46). While identified, these problems were not resolved before the Germans attempted an action which solidified the importance of airborne operations--the invasion of Crete.

On 20 May 1941, the first German paratroopers and glider crews descended on the airfield at Maleme and the town of Canea, on the island of Crete. The German intelligence had been brutally inaccurate and they were met by a well-fortified force of

British and New Zealanders. In spite of the initial shock at the invasion, the defenders fought well and the Germans suffered heavy casualties. However, in the fog of battle, one of the British commanders mistakenly pulled his troops away from a critical position overlooking the airfield and the Germans were able to exploit this position and turn the tide of the battle. A subsequent British counterattack on the airfield failed due to the overwhelming air superiority enjoyed by the Germans. Within two weeks, the British withdrew completely from the island, leaving it in German hands.

The German invasion of Crete, while fraught with mistakes not much different from those made in the earlier attacks on Denmark and Norway, was a significant victory and a triumph for airpower. "It was the only victory won by any of the contestants in the Second World War with the sole use of airborne forces....The moral effect of the combination of close air support and shock tactics had not only secured a major strategic victory for the Axis, but had further spread the myth of invincibility with which the German airborne were now endowed" (Hickey, 1979: 72).

Unfortunately for the Germans, the high casualties involved--over 11,000 killed or wounded, a 44% casualty rate, and 170 out of 530 aircraft destroyed--caused Hitler to shy away from future airborne operations. He felt that surprise would be unachievable in the future, and that casualties incurred in any large-scale airborne operation would be unacceptable. He apparently convinced himself the Allies would come to the same conclusion. This would prove to be his downfall, as the Allies were already making progress toward airborne forces of their own.

Baby Steps. In 1940, both the British and the Americans used the German successes in Denmark, Norway, and later in Crete, as impetus to develop their own airborne forces. The Allies were not aware of the losses suffered by the Germans at Crete, only the lightning speed of the victory. So, just as the Germans were de-emphasizing the use of airborne operations, the Allies were making small strides to develop their own capability in this area.

In the U.S., the War Department organized its first airborne force, the 501st Parachute Company, at Fort Benning, Georgia, in July 1940 (Miller, 1988: 79). The unit soon expanded to battalion size, but it was not until November 1941 that the Air Corps first dropped more than one company of paratroopers (Warren, 1955: 1). By February 1942, the parachute group had grown to four battalions. The next step would be expansion to division sized units. “From the outset, [they] were set on a small, ‘greatly stripped-down’ division of about eighty-three hundred men, about half the number in a normal infantry division...Such a division would have one parachute regiment of about two thousand men and two glider regiments of about sixteen hundred men each, plus light infantry and supporting units. The parachutists would jump first and seize an airhead into which the gliders would land” (Blair, 1985: 32). This main tactical use of a brigade airdrop remains unchanged to the current day. The division chosen to split into the two airborne divisions was the 82nd motorized division, under command of Major General Matthew Ridgway.

While the 82nd Airborne was completing training and settling in at Fort Bragg, the Allies were attempting their first major airborne operation of the war, in conjunction with Operation TORCH, the amphibious landing in Northwest Africa. The use of airborne forces was a vital part of the TORCH plan for a quick seizure of Algeria and the dash to Tunisia to defeat Field Marshall Erwin Rommel.

The 60th Troop Carrier Group would airlift the task force consisting of the 2d Battalion and the 503d US Parachute Infantry over 1500 miles from England to Algeria--the longest range air assault of the war (Miller, 1988: 82). This may well be the first example of "strategic" airdrop--the movement of troops from one theater to another for the purpose of conducting immediate combat operations--in history.

Considering the operational difficulties of just arriving in the general area of the target, the mission was a good proving ground for how not to conduct an airborne assault. About half the flight route was over Spain, a neutral country somewhat friendly to the enemy. Navigators had only limited celestial navigation training and were unfamiliar with their British equipment. Due to a combination of bad piloting, and bad luck, the formation lost contact with its many elements during the flight. The flight was made at night--at 10,000 feet, in the clouds--which made ground references useless. Fourteen of the pilots were assigned planes at the last minute, departing England with minimal rest and briefings. Only one-tenth of the airplanes had adequate charts. The flight failed to receive signals from two clandestine radio beacons near Oran....Of the 39 C-47s that left England on 7 November only 14 were serviceable a day later: 9 were missing, 3 destroyed, and 13 damaged. (Miller, 1988: 82-82)

On the ground, the results were not much better. Many of the troops were dropped near a column of Vichy French tanks, only to discover they were actually American tanks headed toward the battle at Oran. Others attempted to land at an airfield under Allied control, only to be fired on by Allied airplanes. Given the length of the

flight and the condition of the troops on arrival, it is probably just as well that they did not encounter heavy enemy resistance as they were not well rested enough to participate in a pitched battle.

While nobody could call the operation a success, it did demonstrate the ability to deliver large numbers of troops over long distances in order to mass combat firepower at a place of our choosing. However, the significant problems involved in launching an airborne operation had generated plenty of critics.

There was a strong body of opinion which, whilst acknowledging the value of small-scale airborne raids...strenuously opposed any attempt to mount operations on a brigade or divisional basis. The airborne school countered that the forthcoming entry into Europe called for large-scale parachute and glider landings in order to confuse the defense, cut lines of reinforcement, paralyze the Axis command system and secure the flanks of the seaborne assault. (Hickey, 1979: 97)

The Invasion of Sicily. The proponents of airborne operations would have their chance to prove their worth with Operation HUSKY and Operation LADBROKE, the first large-scale Allied airborne operations of WWII. Unfortunately, on the surface the results of these operations appeared to be unmitigated disaster. Most of the problems can be traced to poor planning.

The American portion of the mission, Operation HUSKY, involved the airdrop of the 82nd Airborne, using 226 C-47 transports. For safety purposes, they decided to make a night drop, and all lights on the planes were extinguished save for the tiny position lights. There was little moonlight and the salt spray encountered at low altitude further diminished visibility. Add to this mix a very difficult low level route to avoid Allied

ships and a 35 mile per hour crosswind which caused the inexperienced flight crews to make landfall far off course. Dust and smoke from preinvasion bombardments obscured landmarks and the drop zones and added to the confusion, resulting in paratroopers scattered for 60 miles along the coast (Boston, 1983: 67).

The British portion involved a ridiculously dangerous night glider landing force, which was approved over the objections of the senior RAF officers involved. Due to the lack of training in U.S. gliders and the high headwinds, only 12 of the 137 gliders reached their landing zones, with 65 going down in the sea causing a loss of over 600 lives (Boston, 1983: 67). A subsequent resupply effort two days later encountered deadly fire from trigger happy Allied gunners, who had been under attack all day. As a result, 60 of 237 aircraft were either damaged or destroyed by friendly fire (Boston, 1983: 67).

There were some unexpected positive results of the operations. Because of the widespread locations of the various troops, and their willingness to engage any enemy and fight pitched battles, the Italians and Germans thought there were many more airborne troops on the island than actually existed. In addition, they could not readily determine the actual Allied objective. And one of the top German airborne experts felt the presence of the Allied airborne troops prevented one of two German divisions from reinforcing the Axis positions, effectively leading to the defeat of the Axis on Sicily (Miller, 1988: 88).

In spite of these failures, several significant lessons were learned which would prove invaluable later in the war. The Allies developed small pathfinder teams equipped

with marker panels, lights, and a radio beacon which preceded the main formation and were used to mark the drop zone.

The operation over Sicily had been planned by staff officers with no troop carrier or airborne experience, and troop carrier leaders quietly acquiesced because they either had no better proposal or misunderstood the difficulties involved. Experiences in Sicily emphasized the need for a joint airborne planning headquarters subordinate to an Air Force commander and responsible for the entire operation until the troops reached the ground. Obviously, the key to airborne warfare lay in concentrating troops and firepower on the ground, a function of thorough planning and proficient troop carriers. These lessons became the doctrinal basis for airborne operations in the invasion of Europe. (Boston, 1983: 68)

Operation NEPTUNE - The Airborne Invasion of Normandy. As the plan to invade the European mainland solidified, airborne proponents worked to hammer the lessons learned earlier in the war into doctrine. Operations into Italy validated the concept of pathfinder teams, which greatly enhanced the probability of a successful mission. Two other important principles were highlighted during training exercises conducted back in the U.S. and aimed at changing Eisenhower's mind about the efficacy of airborne operations (he was not a believer in the airborne division). Those principles were included in a document entitled Employment of Airborne and Troop Carrier Forces.

Routes, altitudes, time schedules, and means of identification, both while in the air and on the ground, must be known in advance by all concerned. Procedures must be prescribed which will insure that troop carrier aircraft which are on course, at proper altitudes and on the correct time schedules, are not fired upon by friendly land, sea, or air forces.

Airborne units should remain under the direct control of the theater commander until they land in the ground combat area when control passes to the officer in command of the area. (War Department Training Circular No. 113, 1943)

Two other important facets of airborne operations were noted in the circular, but not codified as "principles." The first was the idea that airborne troops should be deployed in mass. This would seem to emphasize the idea of a full division, rather than piecemeal battalions. The second was the fact that air superiority was a fundamental prerequisite for successful airborne operations. Because of the low, slow approaches flown, and the lack of any defenses for the troop carrier aircraft, any airborne operation would have to be free of worry from attack from above. All of these principles would be considered in the airborne invasion of Normandy, Operation NEPTUNE.

As D-Day approached, the plan was for two American airborne divisions, the 82nd and 101st, to drop in the vicinity of the town of Ste. Mere-Eglise. They were to hold the town and prevent any German reserves from reaching the amphibious assault zone at Utah Beach. On June 6, 821 C-47's and over 100 gliders carrying over 13,000 men and their equipment took off from airfields in southern England. Pathfinders took off about thirty minutes ahead of the main force, followed by the 101st and then the 82nd.

The formation went well until they approached the coast of France. Here the planes encountered a cloud bank which would turn out to be only about fifteen miles wide. However, as the planes entered the clouds the formation began to split apart due to their inability to see each other. Because of the strict radio silence, the first planes could not warn subsequent formations of the problem. In addition, only two of five planes had navigators on board to find the drop zone.

Of the 13,000 troops dropped, only 10 percent landed on their drop zone, but 60 percent landed within two miles of their zones. The gliders had similar problems, with only 50 percent effective in delivering their loads (Boston, 1983: 69). Because of these problems, all future drops and glider landings during the war were scheduled for daylight, reasoning that the increased effectiveness offset the danger of enemy anti-aircraft activity. Although the drops were not a critical success in and of themselves, the objectives of the airborne force were accomplished. The town was captured and German reserve forces were never brought to bear on the amphibious force at Utah Beach, allowing it to establish a critical beachhead. These successes went far toward making airborne concepts an important consideration for future Allied plans.

The Normandy landings completely vindicated the concept of employing the parachute and glider troops in division size and Eisenhower's insistence on massing them on critical objectives within quick linkup distance of other friendly ground forces. His refusal to consider using the paratroopers as small harassing forces and his equally adamant stand against a deep airborne raid were important factors in the successes of D-Day. At the same time, the Allied staff proved quite capable of planning a large-scale air assault and integrating it into the overall tactical scheme. (Galvin, 1969: 155)

The lessons learned from Normandy were many, but the fundamental issues may be highlighted as follows:

- Large-scale, division-size, airborne operations are possible.
- Night airborne operations--parachute and glider--are possible, but daylight operations are much preferred for accuracy.
- Air superiority contributes immeasurably to successful airborne operations.
- Effective communication between the airborne forces in the field and the troop carrier forces is a must.

- Bad weather can have a serious impact on an airborne operation. (Miller, 1988: 102-103)

Most of these lessons still apply to this day. Only the requirement for daylight operations has changed. Thanks to the sophisticated drop zone identifiers now available, night operations are the standard due to the inherent safety of coming in under cover of darkness.

Airborne Doctrine During the Final Operations of WWII. As the Allies slowly moved across western Europe and into Germany itself, airborne forces were used in many more operations. The lessons learned in previous operations were proven true time and again. As operation stretched into Germany, the distances involved began to limit the size and effectiveness of the forces which could be dropped. The first airborne assault into Germany, Operation MARKET, would be the largest yet attempted. Over 35,000 men either parachuted in or rode gliders. Because of the size, the missions were spread over three days, making it impossible to get the men on the drop zone in mass and in a timely manner. In his after action report, the commander of the airborne force, General Lewis Brereton, pointed out the factors which led to the ultimate failure of this assault:

“Concentrate the maximum force on the principle objective.” This sounds trite, but the ground force planners persist in presenting a multitude of objectives. An all-out effort with everything that can fly must take advantage of the initial surprise by dropping the maximum of supplies and reinforcements before the enemy can muster his air, flak, and ground defenses. All troop drops and landings from the outset must be in combat teams, no matter how small the combat team is.

By this I mean that you cannot count on landing your parachutists today hoping to land their heavy weapons and transport in a landing lift today or tomorrow. Every serial launched must be reasonably capable of

sustaining combat, even if a combat team is no larger than a company.
(Miller, 1988: 115)

General Brereton was making a case which has not changed greatly over the years. Get the maximum force on the ground with the maximum firepower in the minimum time. This will give your force the best chance to achieve their objective--and make sure the objective is not so widely splintered as to minimize the effect of the forces you were able to insert. Today's strategic brigade airdrop concept codifies this principle in that the follow-on forces are a crucial part of the entire operation. The mission does not end when the last jumper leaves the door. It ends when the airhead has been captured and the last of the follow-on forces are on the ground in the combat zone.

The lessons learned in this operation and its predecessors would finally come to fruition in the last major airborne assault of the war--Operation VARSITY, the airborne assault across the Rhine. The operation was designed to take the high ground on the east of the river and protect an amphibious assault coming across the river. The plan was for a daylight assault, to ten drop zones, eight of which were located within 200 yards of one another. Notably, 17,000 troops along with ammunition and equipment were to be dropped in four hours, in addition to receiving immediate resupply by air. Finally, the Allies were learning to concentrate mass for an overwhelming assault in a short period of time, taking advantage of the element of surprise (Blair, 1985: 453-457). This speedy massing of combat firepower using an airborne assault played a major role in the Allied breakthrough into Northern Germany.

The Postwar Era and the Korean War

Airdrop Issues in the Early Days of the Air Force. After the Air Force became a separate service in 1947, it went through a feeling-out period where it tried to determine exactly what its roles and missions should be. Part of this problem was the distinction between strategic airlift--the Air Transport Command--and tactical airlift--the Troop Carrier Command. Many proponents in the Air Force wanted to merge these two under a single manager. One former troop carrier commander, Major General Paul Williams, proposed a major change in how the Air Force should think about air transportation issues.

Arguing that long-range troop carrier aircraft were capable of transporting entire ground force units over thousands of miles of distance into combat, he said that the whole premise of the Air Transport Command's responsibility for intertheater airlift was no longer valid. Distances involved and equipment utilized could no longer be the criteria for distinguishing between troop carriers and strategic airlift missions. Instead, Gen Williams wanted troop carriers to be responsible for air transportation of units into combat regardless of the distances involved. Air Transport Command, on the other hand, would be in charge of moving individuals and miscellaneous cargo, again regardless of distance....To the extent that airlift could deliver integral combat forces across long distances directly into combat, it should have that mission. It saved time and had great strategic potential. (Miller, 1988: 206-207)

General Hap Arnold, commanding general of the Army Air Forces, felt the strategic mission should remain separate from the theater forces and his opinion won out. The next twenty plus years would see this argument raised time and again.

While the Air Force was busy trying to decide how best to organize its forces, the Army was intent on proving the continued need for airborne operations and enhancing

that capability. During the Berlin Airlift in 1948-49, the troop carrier aircraft were conscripted into the airland operations of Operation VITTLES. "Interest in troop carrier activities waned as airlift came to be seen in term of ton-miles hauled and firm scheduling--the doctrinal legacy of the Berlin Airlift" (Warren, 1957: 8).

To combat this shift in thinking, General Brereton scheduled an exercise in early 1950 to show the capability of the troop carriers and airborne divisions to "maintain and operate an airhead wholly within enemy held territory. It was to be the first tactical application of the strategic airlift technique to be attempted under simulated combat conditions" (Miller, 1988: 190).

The airborne assault included 69 aircraft dropping 1,900 paratroopers. Within four hours this force had the airhead ready for operations which brought in 68 more aircraft, landing and delivering over 2,000 more troops and equipment. When the operation was complete, 5,606 paratroopers and 365 tons of equipment had been dropped, with 8,753 passengers and 2,500 tons delivered at the airhead (Miller, 1988: 191-192). While the operation was successful, it pointed out several potential problems. Among these were communications difficulties, command and control shortfalls, and the need for absolute air superiority, both holdovers from WWII. Perhaps the most glaring issue was the shortage of transport type aircraft. As one of the maneuver commanders noted, "There will always be a shortage of transport type aircraft and we cannot carry out an expansion of our air transport force until we are sure we have done everything we can to

maximize the utilization of what we already have" (Miller, 1988: 194). Obviously, the issues and fiscal realities of the 1950's have not changed appreciably even to this day.

Airborne Operations in Support of the Korean War. Only two actual airborne operations occurred during the Korean War, and in both cases the objective was to disrupt the enemy's line of retreat. The operations were notable not so much for their tactical value as for the first-rate execution of airborne techniques which had been perfected since WWII.

The first operation, in late 1950, involved the initial combat use of the C-119 Flying Boxcar, a tail loading aircraft. Eighty C-119's dropped over 3500 men while 40 C-47's dropped over 560 tons of ammunition and supplies, along with several vehicles and large guns. "The drop went down with copy-book precision and the aircraft returned for a second and third lift...It was a staggering display of the advances in airborne techniques since 1945, and it was the first time that such quantities of heavy support weapons and vehicles had been parachuted in one operation" (Weeks, 1978: 170-171). Unfortunately, most of the 30,000 Chinese troops which the UN forces were attempting to cut off had already passed through the area, but the UN forces did succeed in decimating the entire rear guard of 2,500 men.

The second operation was similar to the first in both size and objectives. In early 1951, the airborne troops were again used to try and cut off a retreating army. Like the first battle, the drop went smoothly but the objective force was able to evade the airborne troops and escape.

One other important result of the Korean War was the emphasis on airdropping and airlifting supplies to isolated units. In order to accomplish these important missions, it became obvious to the commanders that all airlift assets in the theater must remain under control of a central agent, responsible to the theater commander. "No longer could the Air Force afford the luxury of airlift organically assigned to airborne units and not used to maximum advantage" (Boston, 1983: 73). As the Korean War gave way to the late 1950's and 1960's, the question would now focus on the separation between strategic lift (under Air Transport Command) and theater lift (under Tactical Air Command).

Out of Korea and Into Vietnam

After Korea, the debate continued to rage over who should control airlift assets. The Air Force began to move toward larger aircraft with the capability to fly longer distances. First came the C-130 Hercules, designed to perform not only troop carrier missions, but also the entire spectrum of both inter- and intra-theater airlift missions. In the early 1960's, the C-141 Starlifter came into play, a quantum leap over even the C-130. Secretary of State Robert McNamara is quoted on his vision of future airlift:

The distinction between troop carrier and strategic airlift operations based upon differences in equipment will no longer be significant once the C-130E's and C-141's are acquired. Both of these aircraft are suitable for either mission.

Admittedly, the two missions require different training, but there does not seem to be any serious obstacles to cross training the MATS crews. It may also prove desirable to increase the rate of utilization of the troop carrier forces. The measures would greatly increase the flexibility of our transport forces for both missions.

Indeed, the C-141 may open up entirely new vistas in troop carrier operations. For example, it might prove to be entirely feasible to load troops and their equipment in the United States and fly them directly to the

battle area overseas, instead of moving them by strategic airlift to an overseas assembly point and then loading them and their equipment on troop carriers. Thus, the line of demarcation between the strategic airlift mission and the troop carrier or assault mission may, in time, become less important. (Miller, 1988: 283-284)

In fact, the Air Force would do exactly that in Vietnam, moving entire forces first from Hawaii to Pleiku, Vietnam, in the winter of 1965, and then all the way from Fort Campbell, Kentucky, to Bien Hoa AB, Vietnam, in November of 1967 (Miller, 1988: 334). These movements proved the ability of strategic transport aircraft to deliver directly from home base to the combat arena. While these missions airlanded the troops and equipment (the planes actually landed and offloaded, versus dropping them as they flew over), they indicated the feasibility of airdropping from strategic distances as well.

While the Air Force was trying to resolve the question of tactical versus strategic roles for its airlift forces, the Army was fighting its own battle to maintain its own organic airlift forces. Vietnam became the first opportunity for the Army to test its new concept of air assault, or airborne cavalry, forces. These forces were flown in via helicopters, taking advantage of their flexibility, and either landed or dropped from low altitude using rappelling techniques. Southeast Asia, with its shifting battlefields and lack of prepared landing areas, was a perfect place to test the efficacy of these new forces. Attack helicopters provided the close air support and heavy lift helicopters transported the troops.

Because the Army was determined to reduce its reliance on the Air Force, the majority of troops dropped into combat zones during Vietnam were transported via

helicopters. This provided them with additional speed and flexibility for moving troops around the battlefield, but still could not compete with airlift in terms of range or amount of equipment moved. However, the flexibility of the helicopters was extremely important given the nature of the theater, so Air Force airlift assets were used mainly for resupply or evacuation efforts at places like Khe Sanh and Kham Duc.

While the concept of airdropping a brigade into a combat zone thousands of miles from the port of embarkation had not yet been solidified in doctrine, at the conclusion of Vietnam, General Paul Carlton, commander of the Military Airlift Command, was asked how far forward in the combat environment the C-5 and C-141 would operate. His response is as valid today (concerning the C-17) as it was then:

It depends on how much carrying the freight to that point is worth to the JCS or the operation that is going on. We have already used the C-5 both in Saigon and Da Nang, in Vietnam, in very high risk zones. We have operated under the threat of the SAM, of the surface-to-air, as well as air-to-air, under very unusual circumstances such as the second Tet offensive when we hauled tanks into Da Nang. We don't expose it unless the risk is worth it. We treat it very carefully and conservatively, but to answer your question, if the risk is worth taking to win the battle, we will take it. Just like we will with any airplane....The JCS makes the decision...under almost all circumstances of risks. (Miller, 1988: 356)

Thus far, we have seen the evolution of airborne assault doctrine from the late days of WWI to the present need to move large forces over great distances directly into the combat arena. In the next section, I will examine the evolution of the C-17 program through the eighties, and the emergence of the "Strategic Brigade Airdrop" doctrine in the early nineties as it becomes the requirement which drives the need for a total force of 120 C-17's.

III. Strategic Brigade Airdrop - The Present

Into the 80's - Defining the New Airlift Requirement

As we approached the eighties, the requirement for a new airlifter to replace the C-141 became apparent. The capability to meet evolving airdrop requirements became one of the considerations for what would become known as the C-X. "To assure the aircraft becomes the efficient workhorse America needs, certain...operational and support characteristics have been specified. One of these is the requirement that C-X be able to airdrop troops and equipment...This capability will provide the Army with the operational flexibility to insert or supply forces wherever and whenever needed to influence a combat or contingency operation" (Pilsch, 1981: 14).

While modern air and ground defenses might preclude operations on the scale of those in WWII, certain situations might still dictate the need for an airborne assault force. "An airborne assault against an unsophisticated enemy in a limited war scenario remains a powerful weapon. To this end, the Army retains one airborne division, and MAC units maintain proficiency in methods to airdrop brigade-sized forces. The tactics have changed since WWII to match changes on the battlefield, but the doctrine that evolved remains intact" (Boston, 1983: 75).

However, in spite of this rhetoric, the main battle for the C-17 was being fought over the requirement that it have the capability to land at small, austere fields (SAFs).

This capability would drive the debate in the 1980's over whether to procure the C-17, more C-5B's, or a commercial freighter such as the B-747.

The Evolution of the C-17

In 1979, the Air Force was focused on the Advanced Medium STOL (Short Takeoff and Landing) Transport (AMST) program as the single aircraft that could perform the total airlift mission. However, the Carter administration killed the AMST on the same day they formally initiated the C-X program as a follow-on to the C-5 and the C-141 (Ulsamer, 1980: 16). As the debate developed concerning this new airlifter, much of the focus was on the ability to deliver men and equipment quickly to any point in the world. "It [airlift] is much more than a transportation mode--it is an instrument of policy and a warfighting tool....The ability to airland or airdrop forces and equipment across long distances in a matter of hours gives civilian leaders and military planners a flexibility not found elsewhere. These capabilities also complicate planning by potential adversaries and can give them serious pause" (Miller, 1988: 370).

Early on in the development of the C-X, the focus of that long-range lift capability was on the ability to land virtually anywhere. "When operational, the C-X is expected to carry, over intercontinental distances, the full range of military equipment, including the new XM-1 tank and other outsize cargo that now can be airlifted only by the C-5. The C-X will also be capable of operating into austere fields, greatly improving our capability to respond to global contingencies" (Department of Defense, 1981: 201).

As the C-X evolved into the C-17, this concept of direct delivery, or putting the troops right into the forward portion of the combat zone without a stop at an intermediate staging base, became even more important. As Secretary of Defense Caspar Weinberger noted in his 1985 annual report to Congress, “For deterrence to be effective, we must be capable--and be seen as being capable--of responding promptly to aggression, with forces of sufficient size and strength to limit the extent of the conflict and protect the security of friends and allies. A credible deterrent, then, hinges to a large extent on our ability to deliver forces rapidly to distant trouble spots and to sustain them once they are employed” (Department of Defense, 1984: 173).

As noted above, the key to this capability was the ability to deliver forces directly to the spot required by using existing small, austere airfields (SAFs). “The basic philosophy was that operating into SAFs improved force deployment and employment flexibility, enhanced the aircraft flow by decreasing ground lines of communication requirements, closed combat force on time and at the right place, and complicated enemy interdiction efforts” (Miller, 1988: 390). An additional side benefit of landing at SAFs was that there would be less conflict with local forces for ramp space, reducing the possibility that a full ramp would hamper the flow of men and equipment.

Because of these modern combat requirements, the C-17 would eventually become the choice over the C-5 or the B-747 freighter. The B-747 could not handle the outsize cargo loads of the C-5 or the C-17, required substantial infrastructure usually found at a major terminal, and could not operate into SAFs at all. The C-5 could handle

the outsize cargo requirements, but had difficulty operating into SAFs because it required wide taxiways to operate on or wide runways in order to turn around, could not back-up, and took up to three times as much ramp space as a C-17.

The C-X request for proposal would be a fundamental leap in airlift doctrine. Essentially, the Air Force was looking for a single airplane that could handle nearly all the potential airlift missions in almost any environment. “The C-X request for proposal required an aircraft that could deliver a full range of combat equipment over intercontinental distances; operate through a 3,000-foot runway environment; airdrop troops and equipment; have ground maneuverability characteristics that would permit routine operations through small, austere airfields; be designed for survivability; have excellent reliability, maintainability, and availability; and have a low life-cycle cost” (Miller, 1988: 396). While the C-17 has not proven to be perfect, or cheap, it meets these requirements much better than either the C-5B or the B-747.

The most important facet of the C-17 to this point was its flexibility in performing all the airlift roles--delivery to main operating bases and direct delivery to forward operating locations (intertheater lift) and shuttles between main operating bases and forward operating locations (intratheater lift). The C-5 could not handle the shuttles and the C-130 could not handle the outsized cargo that needed to be shuttled. The C-17 could do both, precluding the need for surface transportation to move the bulk cargo in the theater, assuming cost is not an issue.

As the debate played itself out, it became clear that the C-17 was the right choice as the core airlifter of the future. The discussion now focused on the correct number of C-17's to purchase. This number fluctuated wildly over the years, as the stated requirements for airlift capability changed from a high of 66 million ton miles (MTM)/day based on 1983's Congressionally Mandated Mobility Study, to today's current level of 49.7 MTM/day. The most ambitious proposal from the Air Force called for 210 C-17's (Johnson, 1986: 395). Fiscal realities as well as a reduction in the required airlift capacity from 66 MTM/day to 52 MTM/day in 1990, cut that number back to 120 (C-17 Aircraft, 1995: 3). "As a result of a 1993 Defense Acquisition Board review, the Deputy Secretary of Defense reduced the program to 40 aircraft for a provisional period, pending another Board review in November 1995" (Airlift Requirements, 1994: 3). This review would focus on the outcome of the C-17's initial Reliability, Maintainability, and Availability Evaluation (RM&AE), which was scheduled for the summer of 1995.

As the RM&AE approached, the debate was intensifying over future procurement of the C-17. On the one hand were the backers of this core airlifter, the centerpiece of Air Mobility Command's future airlift fleet. And on the other hand were the backers of the so-called Non-Developmental Airlift Aircraft (NDAA). The NDAA would be an off-the-shelf, commercial freighter. The leading contender was the Boeing 747-400. Randy Harrison, a Boeing spokesman, pointed out that "while the NDAA does not have all the features of the C-17, it can carry twice the cargo at twice the range, and at lower cost.

Had it been used in Desert Shield...it could have flown non-stop from the American east coast to Riyadh" (Fruehling, 1995: 37). These lower procurement costs and larger total lift capabilities were the NDAA's main assets.

The C-17 backers focused on the outsized cargo requirement and the military utility of the C-17, most evident in its direct delivery capability. General Robert Rutherford, commander of the Air Mobility Command summed up the differences. "The NDAA is a capable airplane, but it doesn't have the capabilities of the C-17. It doesn't have airdrop, or short field takeoff and landing; it is a much bigger airplane" (Fruehling, 1995: 39). An old concept under a new name would ultimately drive the decision--strategic brigade airdrop.

Developing the Strategic Brigade Airdrop Doctrine

Several events have combined in recent years to drive the SBA requirement. One of the most important drivers is the rise in importance of "joint" operations--those operations that involve the elements of two or more services. Two significant occurrences brought this about. The first occurrence was the failure of the Desert One rescue operation in Iran in 1980. While generally seen as a driver for special operations training, this ill-conceived attempt to rescue the hostages from the U.S. embassy in Iran pointed out several deficiencies in command and control and training of forces consisting of members from several services. The second occurrence was congressional legislation in the form of the Goldwater-Nichols Reorganization Act of 1986 that greatly increased the power of the Joint Chiefs of Staff and the Joint Staff.

Another event that has increased the development of the SBA requirement is the change in thinking from forward presence to forward projection of forces. As we have cut back on our deployed forces overseas, we have had to increase our ability to project those forces anywhere on the globe. We do this through the “mobility triad,” which involves the three pillars of mobility operations--airlift, sealift, and prepositioning.

Prepositioning allows us to place large amounts of supplies in key spots where we can have easy access if trouble develops. Sealift allows us to carry huge quantities of supplies, but also takes significant time to arrive, even with fast, surface ships. Airlift, while limited in terms of the amount of force it can bring to bear, provides us with the ability to bring force to bear at a place and a time of our choosing, especially in the airdrop mode.

This airdrop capability, as projected from the United States over strategic distances (a classified distance that is outlined in the Defense Planning Guidance), has recently been coined “Strategic Brigade Airdrop.” Draft Joint Publication 3-18.1 states,

The airborne operation can be launched from a considerable distance away from the target area with such speed as to cause tactical or operational surprise and prevent effective reaction by the enemy. Because of their ability to deploy from the continental United States as well as from within the theater of operations, airborne forces are capable of conducting operations in support of strategic, operational, and tactical objectives. They rapidly deploy over great distances and conduct combat parachute or airlanded assaults to seize and secure vital objectives. (Draft Joint Publication 3-18.1, 1996: I-2)

The draft publication goes on to emphasize several points that were proven important as far back as WWII. These include the need for surprise, the importance of

close air support and suppression of enemy air defenses during the actual airborne operations, and the follow-on forces which use the secured airhead or more airdrop to resupply and reinforce the initial airdrop contingent.

It also emphasizes the deterrent nature of this brigade airdrop force. As an illustration it points to the crisis in Haiti in 1994, when Raul Cedras had led the ouster of President Juan-Bertrande Aristide. "During Operation UPHOLD DEMOCRACY in Haiti, 1994, the imminent arrival of the 82nd Airborne Division convinced the Haitian dictators to relinquish power" (Draft Joint Publication 3-18.1, 1996: II-2). The departure of dozens of C-130's from Pope AFB may have done far more to force Cedras' hand than the negotiating team of former President Jimmy Carter and former JCS Chairman Colin Powell.

While this paper has focused on the seizure of an enemy airhead in the rear of the main battle area, airborne forces are capable of a wide variety of missions, especially when combined with air assault forces. These include disrupting enemy lines of communications, seizing key terrain to prevent enemy advance or retreat, securing choke points such as mountain passes or river crossings, or preventing enemy reserves from reaching the main battle area. In all cases, however, the airborne force must either be resupplied or extracted in a timely manner to adequately ensure mission success. The importance of air superiority and suppression of enemy air and ground defenses in the area of the operation cannot be overemphasized.

With all these factors in mind, the Army developed the requirement for both the initial airdropped force and the follow-on resupply and reinforcement force which would provide the greatest opportunity for success in a strategic brigade airdrop operation. In addition, they emphasized that the overwhelming majority of such operations would be conducted into areas which only provided a small, austere airfield for airland operations.

The combination of these two requirements was one of the main drivers in the mix of the future airlift force determined by the Defense Acquisition Board in the fall of 1995. The military requirement was a large part of the equation. Another important factor was the increase in humanitarian operations. As one defense official noted, "On the other end of the spectrum is what we did in Rwanda and what we may have to do in Burundi. There is a human crisis of disaster proportions, and [there is where we will] want to move relief aid...to an unimproved airfield from the U.S." (Fulghum, 24 April 1995: 22).

In order to accomplish these operations, the board determined the Air Force should procure 80 more C-17's (for a total of 120) as opposed to a mix of C-17's and NDAA, and delayed the decision on procuring any NDAA. The turning point of the debate was the military utility of the various options, and one of the key factors was the number of C-17's required to accomplish the SBA mission, especially if a SAF was involved. With the board's findings, the chapter was closed temporarily on the C-17/NDAA debate and a new debate would soon open concerning the C-17's ability to actually perform the airdrop mission. That debate will be the focus of the final chapter.

IV. Strategic Brigade Airdrop - The Future?

Questions

Several questions must be answered before the U.S. could conceivably expect to accomplish an actual strategic brigade airdrop. Can the C-17 perform as required as an airdrop platform? If so, what size force and what force mix would be required to actually accomplish an SBA? Finally, given that the U.S. can perform an SBA, in what situations would it consider using this capability and what conditions would have to exist in the drop area? Some of these questions do not yet have answers, but I will attempt to fully cover the issues and leave it to the experts to make the final analyses.

Can the C-17 Perform as Required as an Airdrop Platform?

The Defense Acquisition Board determination to buy 80 more C-17's and delay any NDAA purchases turned on two key factors--the ability of the C-17 to operate into small, austere fields and the ability of the C-17 to fulfill an airdrop role. While many of the questions regarding the C-17's ability to perform airdrop missions have been answered, there are still questions about its ability to perform a strategic brigade airdrop.

In 1994, while conducting initial airdrop testing, it was discovered that "paratroopers tended to 'cross over' while jumping simultaneously from opposite sides of a C-17 in a rapidly paced, static line jump" ("C-17 Yuma Drop Tests," 1995: 77). While there was no injury, the lines of two paratroopers had come in contact, and several similar incidents soon came to light.

Testing conducted at the Yuma Proving Ground in Yuma, Arizona, during April 1995 resolved the problem by changing the deck angle during the jump from 2-5 degrees to 5-7 degrees pitch-up. These tests were necessary to validate the C-17's ability to drop 102 paratroopers in under 55 seconds, meeting the Army's requirement (Smith, 8 May 1995: 22-23).

During its RM&AE, the C-17 further confirmed its airdrop capability by dropping over 3,000 paratroopers and nearly 345.5 tons of equipment and supplies during this month-long test of the airplane's ability to maintain a wartime tempo (Fruehling, 1995: 37).

Finally, the C-17 proved its strategic airdrop capability during a joint U.S./Egyptian exercise, Bright Star '95 in December, 1995. "Two C-17's completed the air drop by flying 147 Army Rangers from Fort Benning, Ga., to Egypt for a mass parachute drop. The aircraft flew to a drop zone near Cairo. The 14.5 hour flight covered 6,400 naut. mi. and involved refueling from a KC-10 enroute. The C-17's descended to low level to drop members of the 3rd Battalion from 800 ft. above the ground" (Hughes, 1996: 63).

However, significant problems still exist for the C-17 airdrop future. These problems revolve around formation geometries. In a large-scale operation, such as an SBA, nearly 80 aircraft will be involved in the drop of the initial entry force. Air Mobility Command is currently conducting tests to minimize interaction between paratroopers and aircraft wake vortices during formation airdrops from the C-17. These

interactions have significant impact on SBA because they affect not only the spacing of the aircraft in the formation, but also the width of the drop zone and the length of time from the first aircraft drop to the last aircraft drop.

While the testing is still underway at this time, several results are already known. Tests conducted in early August of 1996 using mannequins revealed wake vortex interactions “at a mannequin height of 140 feet AGL (#4 aircraft drop) and 210 feet (#6 aircraft drop). Both events resulted in minor canopy deformation, excessive parachute oscillations, and increased rate of descent” (Thayne, 1996: 3).

These interactions occurred between two three-ship elements in a six-ship formation. The spacing between the lead aircraft in each element (#1 and #4) was 27,000 feet. This distance is significant because station keeping equipment used by AMC aircraft to electronically transfer flight information between flight leads is limited to 4 nautical miles, or 24,000 feet, of separation. This equipment is required for formation drops in reduced visibility conditions. Further testing is being contemplated using 40,000 foot spacing between element leads, a distance which is operationally unviable (Thayne, 1996: 4).

The spacing required to avoid the wake vortex interaction also serves to widen the drop zone by 40%, from 1000 to 1400 yards. This impacts the Army planners because it reduces the number of suitable areas available to conduct the drop. The drop zone width has increased from a little over half a mile to over three quarters of a mile. In addition,

this means extra dispersion of men and equipment and more time required to form up into a combat ready force once they hit the ground.

Finally, the increased spacing increases the time interval from the first drop to the last drop. According to Lieutenant Colonel Dan Page, Director of the Army's C-17 Office and the Army's Air Movement Requirements Officer, the Army's intent is to complete the drop of the Alpha echelon of the SBA as quickly as possible--using current aircraft, the best time possible is thirty minutes. This timing, in addition to dispersion over the drop zone, are the two main factors in building combat mass on the drop zone. While Lieutenant Colonel Page did acknowledge that the timing was scenario dependent, based on the nature of the enemy force arrayed against the paratroopers, 30 minutes is the Army's stated desire.

In order to accomplish the airdrop portion of the strategic brigade airdrop mission, the current plan is to use 50 C-5's to drop the heavy equipment, and 26 C-17's to drop the personnel, along with two C-17's to drop the Container Delivery System (CDS) bundles. Using the 27,000 foot spacing noted above would have increased the drop time to over 32 minutes. Using 40,000 foot spacing would increase it to over 40 minutes, 33% longer than the Army's requirement (Thayne, 1996: 1).

While most of this discussion has focused on the C-17 airdrop capabilities, similar testing is currently underway on the C-5 airdrop potential as well. While initial results show the C-5 is capable of heavy equipment drops, the Army Staff at the Pentagon has significant questions still about whether longer drop zones may be required, whether the

C-5 can be configured with the required equipment to drop at night and in poor visibility conditions, and whether similar wake vortex problems may crop up. These capabilities are being thoroughly tested by AMC. If these tests are successful, we must then spend an additional \$100 million to equip 50 C-5B's to perform airdrop missions.

What Size Force and Force Mix Would Be Required to Accomplish an SBA?

In June of 1995, the Army put out a message which formally listed the notional strategic brigade airdrop requirement. The formal name of an SBA mission is a "Forcible Entry Operation." There are four main types of forcible entry operations: (1) A coup de main, or removal of either the seat of power or the leadership itself from an opposing force; (2) the initial phase of a campaign or major operation, where the idea is to establish a lodgment from which to operate; (3) a major operation within a campaign; or (4) noncombatant evacuation operations (NEO).

Using an SBA to accomplish these missions has several advantages. It is responsive on short notice. The Army always maintains one of its three brigades of the 82nd Airborne Division as a "Division Ready Brigade," on alert for departure within 18 hours of initial alert. The force required can be tailored to the mission right up to the last minute. It can bypass land and sea obstacles to mass rapidly on critical targets, achieving surprise and bringing overwhelming combat power to bear. And it is capable of sustained operations.

On the other hand, it is dependent on air assets for aerial delivery and resupply, it is vulnerable to the threat of air defense artillery, it can be hampered by weather, and the initial force will have limited tactical mobility until adequate vehicles can be airlanded with the follow on force.

Because of the wide variety of missions which might require an SBA, the Army chose a Division Ready Brigade, Medium, as the force around which we should tailor the airlift requirement. This gives the greatest flexibility to move up or down in terms of size. The Army DCSOPS, Lieutenant General Paul Blackwell, outlined this force in a message on 26 Jun 95. The Alpha echelon, or parachute delivered force, would consist of 2,552 paratroopers, 116 wheeled vehicles, 10 M551 Sheridans, 18 105mm howitzers, and 54 CDS bundles. The follow-on Bravo echelon, or airlanded force, would consist of 690 troops, 224 wheeled vehicles, 28 helicopters, and 33 463L pallets. This Bravo echelon must be closed within 24 hours after the initial airborne assault (Department of the Army, 26 June 1995: 1-3).

Based on this force, AMC's Studies and Analysis division conducted a Study Report on Strategic Brigade Airdrop Force Mix Analysis. The results can be summarized as follows. The U.S. capability to conduct an SBA in 1996 is hampered by our lack of C-17's and corresponding lack of small, austere field capability. All of the available C-17's would be needed to augment the C-141's during the airdrop portion of the mission, with the C-5's accomplishing the airland portion. Therefore, the airland would have to occur at airfields capable of handling the C-5.

By 2004, the projected fleet using 94 C-17's and 67 C-5's could accomplish an SBA at minimum range (approximately 2000 miles) but not at global range (classified by the Defense Planning Guidance). The follow-on force would be completed 29 hours after first drop, as opposed to the required 24 hours. By fiscal year 2015, the airlift fleet will finally be able to accomplish SBA at global range. The force would include 104 C-17's for the airdrop and airland portion of the mission, and 45 C-5B's for the airdrop portion only. These C-5B's still need to be modified to accomplish the airdrop role (HQ AMC/XPY, 1 April 1996: 2-7).

While it is clear that the U.S. cannot completely meet the current Army requirement for SBA, this does not mean the U.S. cannot conduct SBA operations. The planned Operation UPHOLD DEMOCRACY in Haiti was a form of a brigade airdrop, although the distances involved were not strategic and C-130's played a significant role in the planned airdrop. The key point here is that each situation requires a force tailored to the objectives, and the SBA required force could cover a wide range of contingencies. The Division Ready Brigade, Medium, force size was chosen for planning and programming purposes specifically because it afforded this opportunity to size up or down as required. Of these contingencies, a large portion could still have achievable objectives using a somewhat smaller force.

When Would the U.S. Use SBA, and Under What Battlefield Conditions?

A May 1995 memo from the Deputy Chief of Staff for Operations and Plans for the Army details exactly which recent situations the U.S. was prepared to use brigade or larger airdrops. These missions include Operation URGENT FURY in Grenada, JUST CAUSE in Panama, and UPHOLD DEMOCRACY in Haiti. In addition, no fewer than 11 current OPLANS or CONPLANS to which the 82nd Airborne Division is apportioned include requirements ranging from light to heavy Division Ready Brigades (Department of the Army, 3 May 1995: 1-2).

It is interesting to note, however, that all the operations mentioned above occurred within a few hundred miles of the U.S. in the Caribbean basin. These operations could and did rely heavily on the C-130 to help carry out the mission. But the C-130 cannot accomplish a "strategic" brigade airdrop because it does not have the range or the air refueling capability necessary. It is safe to say that several of the OPLANS listed above require this strategic capability.

Lieutenant Colonel Dann McDonald, of the USAF Mobility Concepts Agency, recently published an article in the Mobility Times entitled, "Retiring the C-141 Starlifter--Are We Ready?" In the article, he discusses the operational utility of the SBA option.

Even though the warfighters need the capability to "strategically" transport and airdrop troops long distances directly into battle when time is critical, the effectiveness of this employment option is debatable. Limited numbers and availability of airlift and air refueling aircraft, coordination of arrival times over target, and troop fatigue are a few of the major difficulties in planning an airdrop mission from the United States to a theater on the other side of the world (PACOM or CENTCOM). The

optimum employment, if time permits, would be the massing of airborne troops and their equipment in theater or the adjacent theater (e.g., EUCOM supporting CENTCOM). In general, C-17 direct delivery capability is more efficient for strategically transporting equipment, not combat ready troops long distances directly into battle. (McDonald, 1996: 18)

The U.S. did demonstrate the capability to accomplish a long-range airdrop at BRIGHT STAR '95, as noted earlier, but that was only using two C-17's. The Army prefers the C-17 over the C-141 for this long distance capability due to the superior comfort--not a small issue when you have to jump from an airplane after sitting in it for over 14 hours.

What we have not addressed is the size of the force required to accomplish the airdrop. When back-up aircraft, those required for training, and those in scheduled maintenance are included, the medium size brigade airdrop requires the entire 120 aircraft C-141 fleet plus an additional 50 C-5B's. Even if we decided to exercise this option, significantly cutting back on our intertheater airlift capability, it would take several days to recall all the necessary aircraft, configure them for airdrop, and get them to Pope AFB, NC, to load and deliver the troops. Estimates range from three to five days, depending on how dispersed these forces are throughout the world. The Division Ready Brigade is on 18 hour standby, but in most cases they would have much more notice before actually being called on to deploy.

For the U.S. to exercise this capability, a serious threat to our national security requiring a time-critical response must exist. Several other conditions will likely be necessary as well, before the National Command Authority is willing to put such a large

portion of its airlift fleet at risk. First and foremost is air superiority over the drop zone.

The requirement for air superiority goes back to the first airdrops in World War II. As discussed earlier, the mechanics of such a large drop require a formation thirty to forty minutes long across the drop zone. In addition, in almost all cases this formation will be proceeding across the drop zone in the same direction. Even if multiple drop zones can be used, 100 plus heavy aircraft moving at drop speeds (approximately 130 knots) make very inviting targets.

In order to counter this, a strategic airdrop will generally occur at night, reducing visibility from the ground. The drop will be preceded by suppression of enemy air defenses and sterilization of the drop zone. This can be accomplished by air forces or special operations forces inserted prior to the drop. The sophistication of the enemy will drive the level of effort required to ensure the drop meets little or no resistance. Unless a truly dire emergency exists, it is unlikely the NCA will allow such a drop to proceed with any more than token resistance.

When you start adding the cost of all these requirements together, you quickly generate a very expensive capability. It is difficult to imagine a target in today's world environment which would make such an operation worth the cost. If the NCA does decide to exercise this capability, it will likely be against a very unsophisticated enemy where there is a high probability of success and little expected opposition. It would be extremely difficult to send a fleet of twenty-six \$300 million airplanes into harms way. A

noncombatant evacuation operation, where American lives are in danger, seems one of the more likely scenarios.

V. Strategic Brigade Airdrop - Conclusions

The concept of brigade airdrop has its roots in the earliest days of flying operations. Over the years, shifting doctrine and requirements, changing world situations, and fiscal realities have led us to where we are today--with most of our forces pulled back to the CONUS and the need to be able to project that force anywhere on the globe with little or no notice.

Most of the military leaders in the Pentagon would agree that this is a capability which the U.S. absolutely must have. It is a requirement that is one of the primary reasons for the continued existence of the 82nd Airborne Division. It is a requirement, along with the C-17's small, austere field capability, that carried the day for the increase in the C-17 buy to 120 aircraft, at the expense of the NDAA. It is also a requirement that we currently cannot fill, and may not be able to fill in the future.

Current projections say the U.S. can fill approximately 70% of the requirement. We should reach 100% of the requirement in the mid 2000's, at least to cover a 2000 mile distance. Strategic distances may not be achievable until 2014. Even if the airlift capability exists, there are serious questions about the C-17's ability to complete the drop in the required time. Testing on the C-17 airdrop problems continues, as they try to determine formation geometries which will minimize the wake vortex interactions. Once the spacing requirements are finalized, the Army needs to examine its requirement to complete the drop in thirty minutes. They need to determine battlefield conditions which

would drive this requirement, and what level of enemy resistance would allow this requirement to be relaxed.

If the U.S. continues to go forward with the SBA requirement, another look at the size of the airlift force may be required. If such a large percentage of our total airlift force is committed to this one mission, do we need additional capability to maintain our intertheater lift capability during such a contingency? If so, do we get the additional capability from more C-17's, the NDAA, the CRAF?

Our place in the world demands that we be able to react to dangerous situations anywhere in the world. Strategic Brigade Airdrop gives us that ability. But many questions need to be answered before we can exercise this capability. Let's hope we do not need it before we have the ability to properly execute the mission.

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Vita

Major Richard A. Klumpp, Jr., was born on 1 June 1963 in Los Angeles, California. He graduated from St. Bernard High School in 1981 and entered undergraduate studies at the United States Air Force Academy in Colorado Springs, Colorado. He completed his four years at the Academy in 1985 as a Distinguished Graduate with a Bachelor of Science degree in Political Science. He earned a scholarship to the John F. Kennedy School of Government at Harvard University, where he graduated in 1987 with a Master's Degree in Public Policy.

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<p>In November of 1995, the Defense Acquisition Board completed its Milestone IIIB review of the C-17 Globemaster procurement program. The board decided to procure 80 more C-17's, for a total of 120, and defer any procurement of the Nondevelopmental Airlift Aircraft (NDAA). One of the driving factors in this decision was the Army's requirement to maintain a capability to accomplish a strategic brigade airdrop (SBA).</p> <p>An SBA involves taking a brigade of airborne troops from the CONUS and deploying them directly into a combat zone several thousand miles away. This research paper examines the historical roots of airborne operations, from before World War II through the Vietnam War. It then examines the airlift issues leading to the procurement of the C-17, along with the parallel evolution of the current SBA doctrine. Finally, it examines several issues in the form of questions that must be answered before the U.S. can actually expect to accomplish an SBA mission.</p>			
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